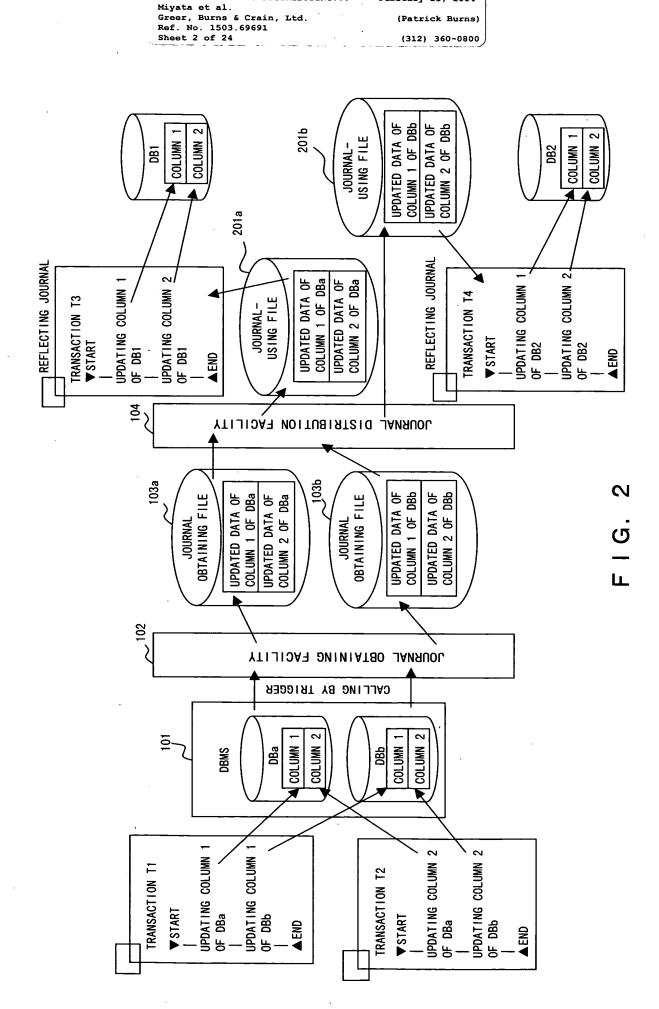
Greer, Burns & Crain, Ltd. Ref. No. 1503.69691 Sheet 1 of 24

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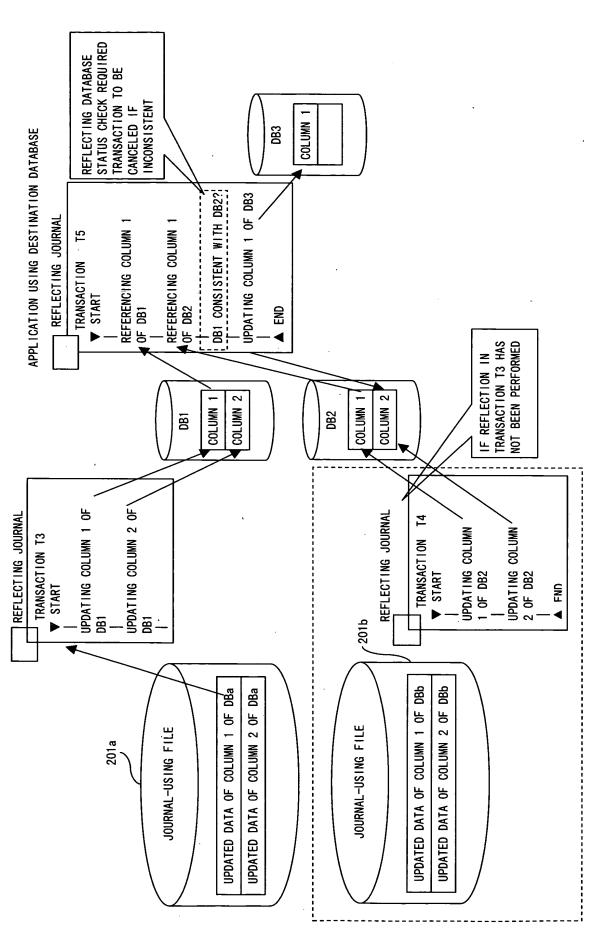


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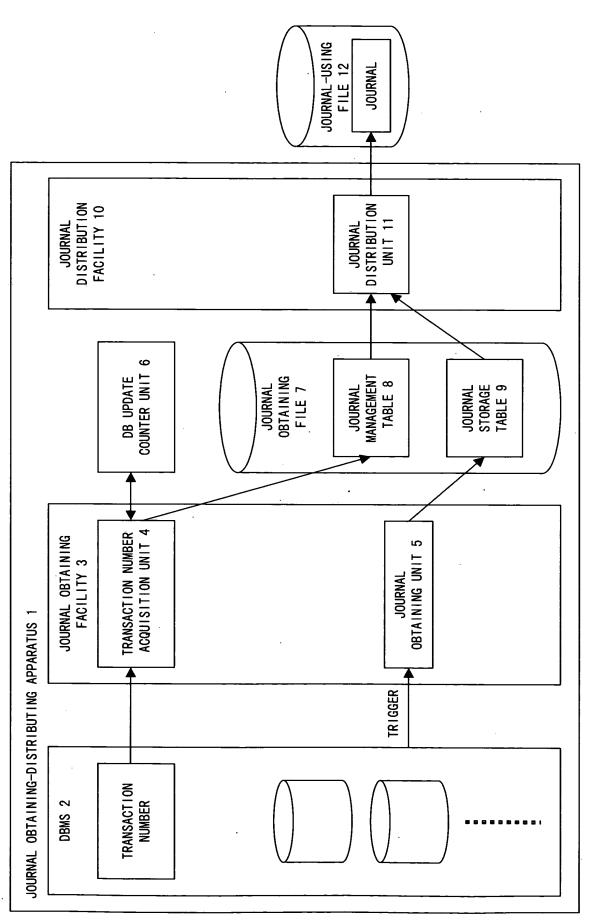
F | G. 3

Greer, Burns & Crain, Ltd. Ref. No. 1503.69691 Sheet 4 of 24 (Patrick Burns) (312) 360-0800 COMPLETED. AS A
RESULT, PROCESS TIME
DELAY, AND
TRANSACTION TIMEOUT
IN WORST CASE
ABNORMALLY TERMINATES
APPLICATION. TRANSACTION IS NOT UPDATE CANNOT BE PERFORMED BECAUSE REFLECT ING APPLICATION USING DESTINATION DATABASE REFERENCING COLUMN 1 OF DB2 **DB**1 AWAITING EXCLUSIVE CONTROL REFERENCING COLUMN 1 OF TRANSACTION ▼ START **►** END NWN TOO COLUMN COLUMN COLUMN COLUMN COLUMN **DB**2 8 UPDATING COLUMN 2 OF DB1 UPDATING COLUMN 1 OF DB1 UPDATING COLUMN 2 OF DB2 UPDATING COLUMN m OF DB2 UPDATING COLUMN n OF DB1 UPDATING COLUMN 1 OF DB2 REFLECTING JOURNAL DBa DBa DBa 윮 **08**0 8 1 OF 2 OF n P UPDATED DATA OF COLUMN 1 OF R ᆼ JOURNAL-USING FILE JOURNAL-USING FILE ~ E UPDATED DATA OF COLUMN UPDATED DATA OF COLUMN COLUMN COLUMN UPDATED DATA OF COLUMN UPDATED DATA OF UPDATED DATA OF 201b 201a-

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F I G. 5

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TRANSACTION NUMBER	COUNT VALUE
100	3
101	4

F I G. 6

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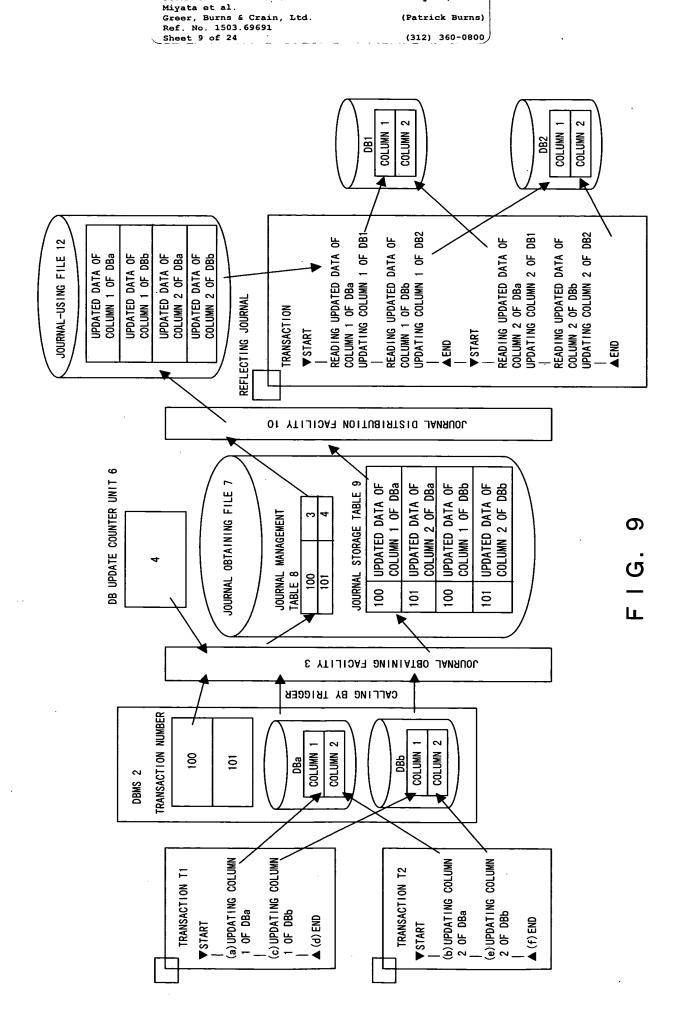
TRANSACTION NUMBER	JOURNAL
100	UPDATED DATA OF COLUMN 1 OF DBa
101	UPDATED DATA OF COLUMN 2 OF DBa
100	UPDATED DATA OF COLUMN 1 OF DBb
101	UPDATED DATA OF COLUMN 2 OF DBb

FIG. 7

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JOURNAL OBTAINING-DISTRIBUTING... February 13, 2004 Miyata et al. Greer, Burns & Crain, Ltd. Ref. No. 1503.69691 Sheet 10 of 24 (312) 360-0800 **START** CALLING BY TRIGGER **S1** RECEIVING JOURNAL FROM TRIGGER FUNCTION **S2** ACQUIRING TRANSACTION NUMBER FROM DBMS **S3** ACQUIRING VALUE AFTER UPDATING DB UPDATE COUNTER TO VALUE OF LATEST VALUE+1 **S4** SEARCHING JOURNAL MANAGEMENT TABLE USING TRANSACTION NUMBER AS KEY **S5** CORRESPONDING NO TRANSACTION NUMBER DETECTED IN JOURNAL MANAGEMENT TABLE? **S6** YES **S**7 UPDATING DB UPDATE COUNTER INSERTING CORRESPONDING OF CORRESPONDING TRANSACTION NUMBER AND DB TRANSACTION NUMBER OF UPDATE COUNTER INTO JOURNAL JOURNAL MANAGEMENT TABLE MANAGEMENT TABLE **S8** INSERTING JOURNAL AND TRANSACTION NUMBER INTO JOURNAL STORAGE TABLE **END**

FIG. 10

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F I G. 11

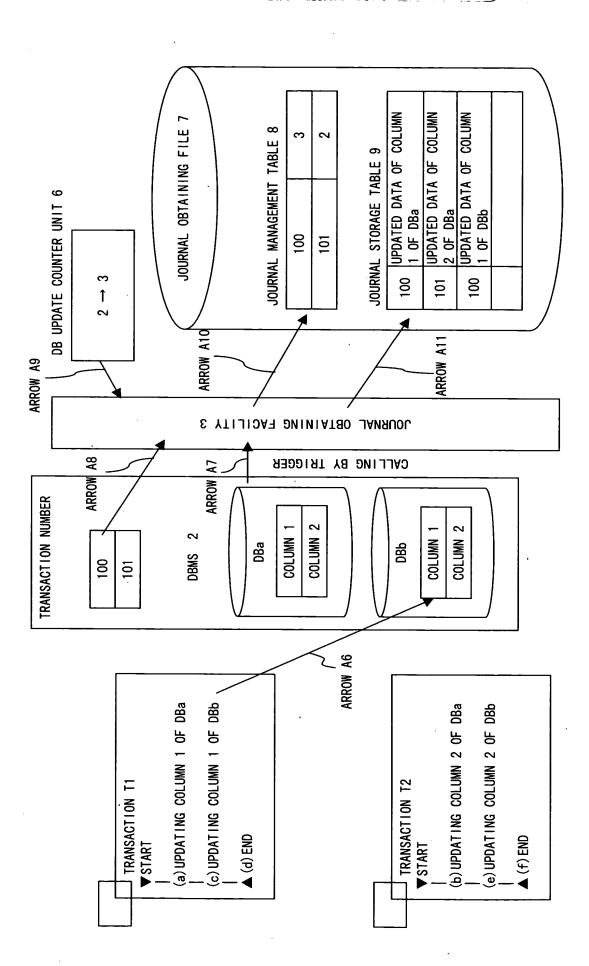
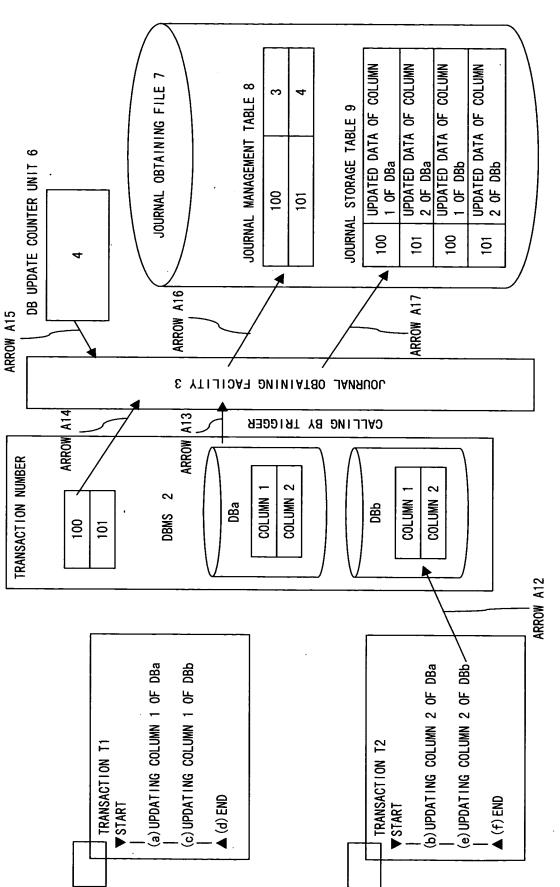


FIG. 12



F | G. 13

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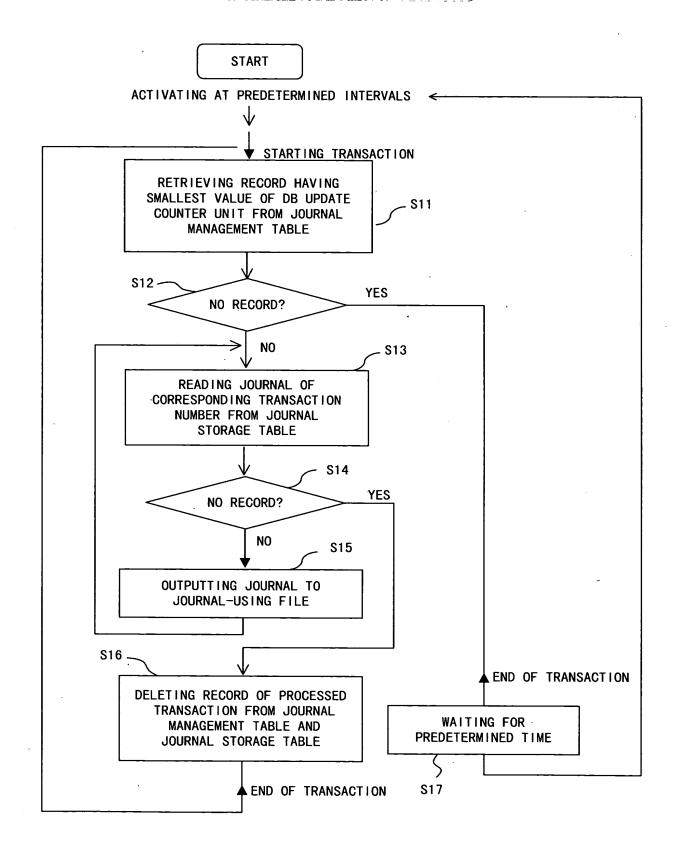
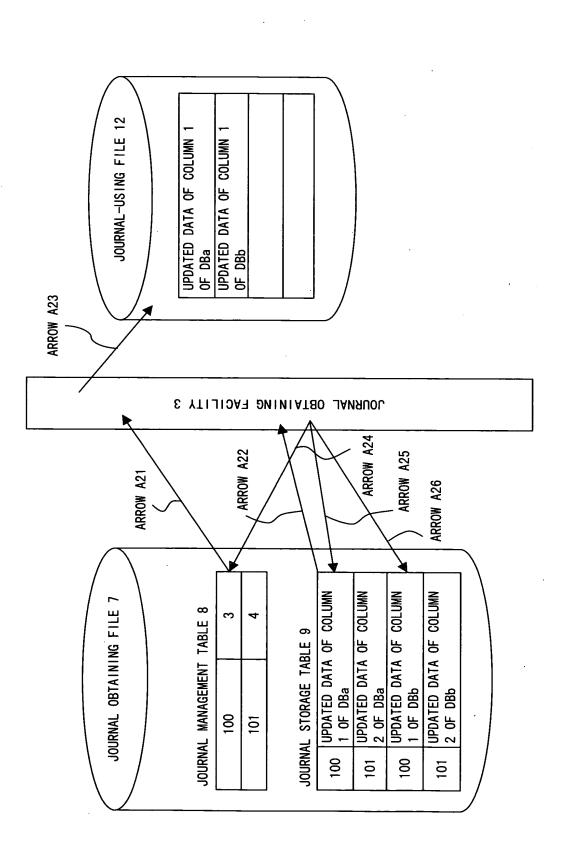


FIG. 14



F | G. 15

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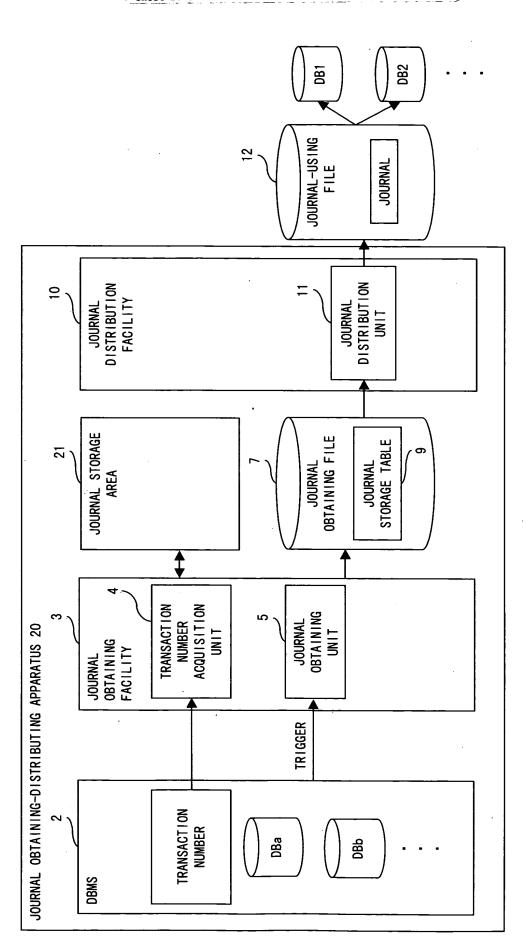


FIG. 16

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TRANSACTION NUMBER	JOURNAL
100	UPDATED DATA OF COLUMN 1 OF DBa
100	UPDATED DATA OF COLUMN 1 OF DBb

TRANSACTION NUMBER	JOURNAL
101	UPDATED DATA OF COLUMN 2 OF DBa
101	UPDATED DATA OF COLUMN 2 OF DBb

FIG. 17

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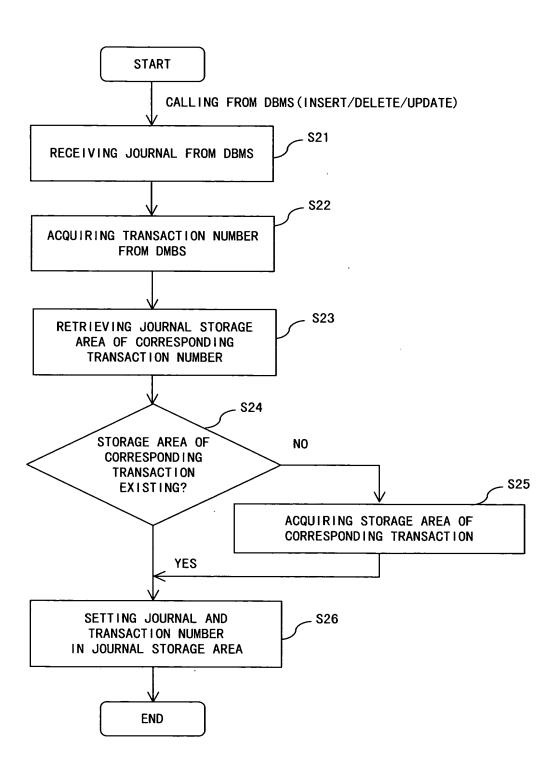


FIG. 19

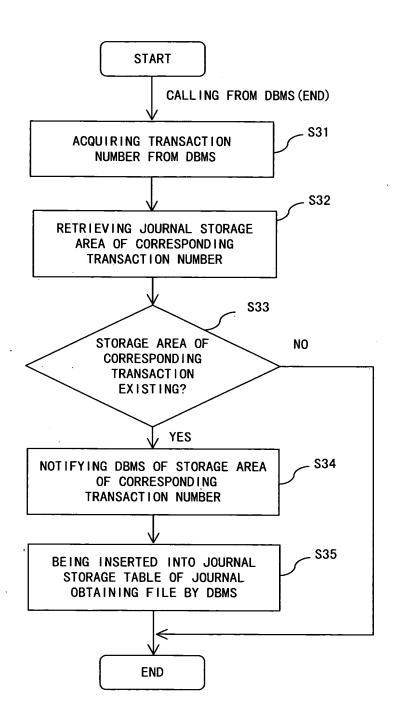


FIG. 20

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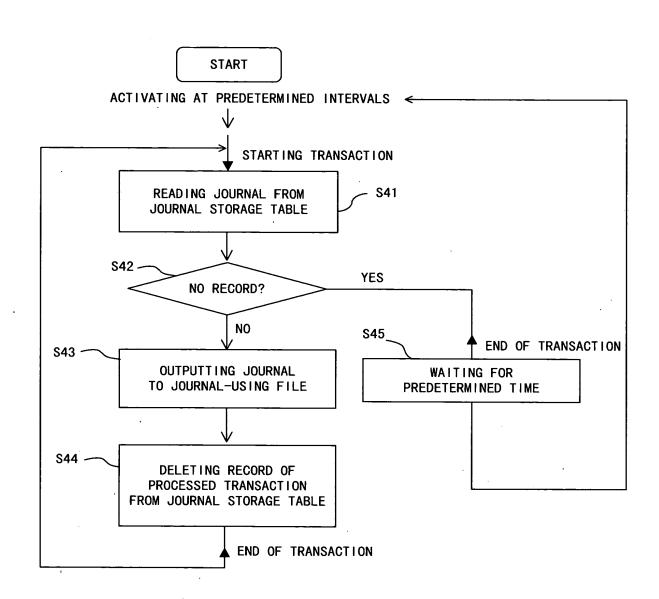


FIG. 21

FIG. 22

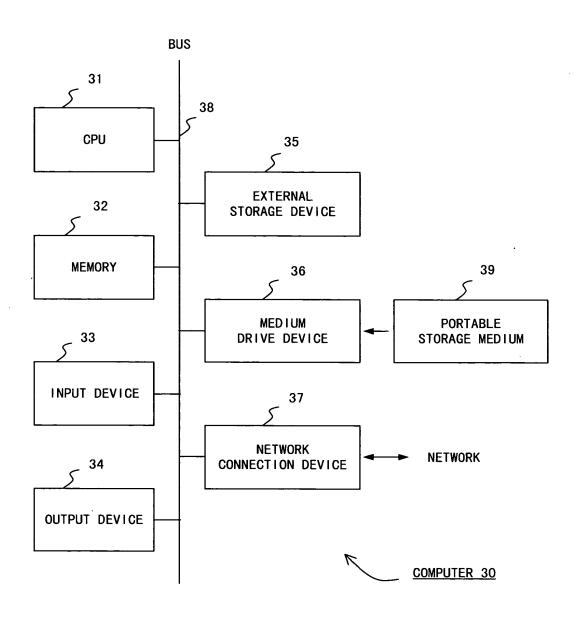


FIG. 23

